



*Fregata minor strumosa.*

## A note on Fregata

By ALEXANDER WETMORE

### PLATE I

[In a previous number of this publication (Bull. Raffles Mus., 8, 1933, p. 72) I made the following statement when writing about the Christmas Island Frigate-bird.—

"Gular pouch.—I cannot fully understand Andrews' remark, "about the beginning of January the adult males begin to acquire the remarkable pouch of scarlet skin beneath the throat". Other authors have made similar remarks in relation to *Fregata*. It seems to me that the adult male of *F. andrewsi* always has a bright red gular pouch and no doubt this is only inflated in "display", but it has, I think, yet to be demonstrated that there is any seasonal variation in form".

I then had some correspondence with Dr. A. Wetmore of the Smithsonian Institution on the subject and the following are excerpts from his letters. F. N. CHASEN.]

While I am not familiar with this species I do know quite well the males of *F. magnificens* and *F. m. strumosa*. In these the gular pouch is large and brilliant red in colour, during the nesting season when it is displayed prominently. Males are attentive to the nest and undertake much of the work of incubation when the egg has been laid. As soon as this stage in the breeding is reached there is no longer display of the gular pouch which immediately begins to shrink in size and to change to a dull orange in colour. In a short time it can no longer be inflated to prominent size as I have demonstrated with a blow pipe on freshly killed individuals.

The sac, therefore, is purely a character of the breeding period and becomes atrophied later. In view of the close relationship among the frigate birds I would assume that *andrewsi* would have the same history though this is purely supposition on my part.

The photograph which is enclosed herewith is one that I made on Laysan Island in the Hawaiian Bird Reservation on May 2, 1923. The birds are *Fregata minor strumosa*, assuming that this race is valid. On the right is shown a bird with full development of the gular sac with this appendage fully inflated; at the left is another male that is past the display stage and in which the sac has begun to shrink. Both specimens I inflated carefully to the full capacity of the gular sac. This picture illustrates my point fully.